Project Design Phase-II
Technology Stack (Architecture & Stack)

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Team ID	PNT2022TMID10145
Project Name	AI BASED DISCOURSE FOR BANKING INDUSTRY

Technical Architecture:

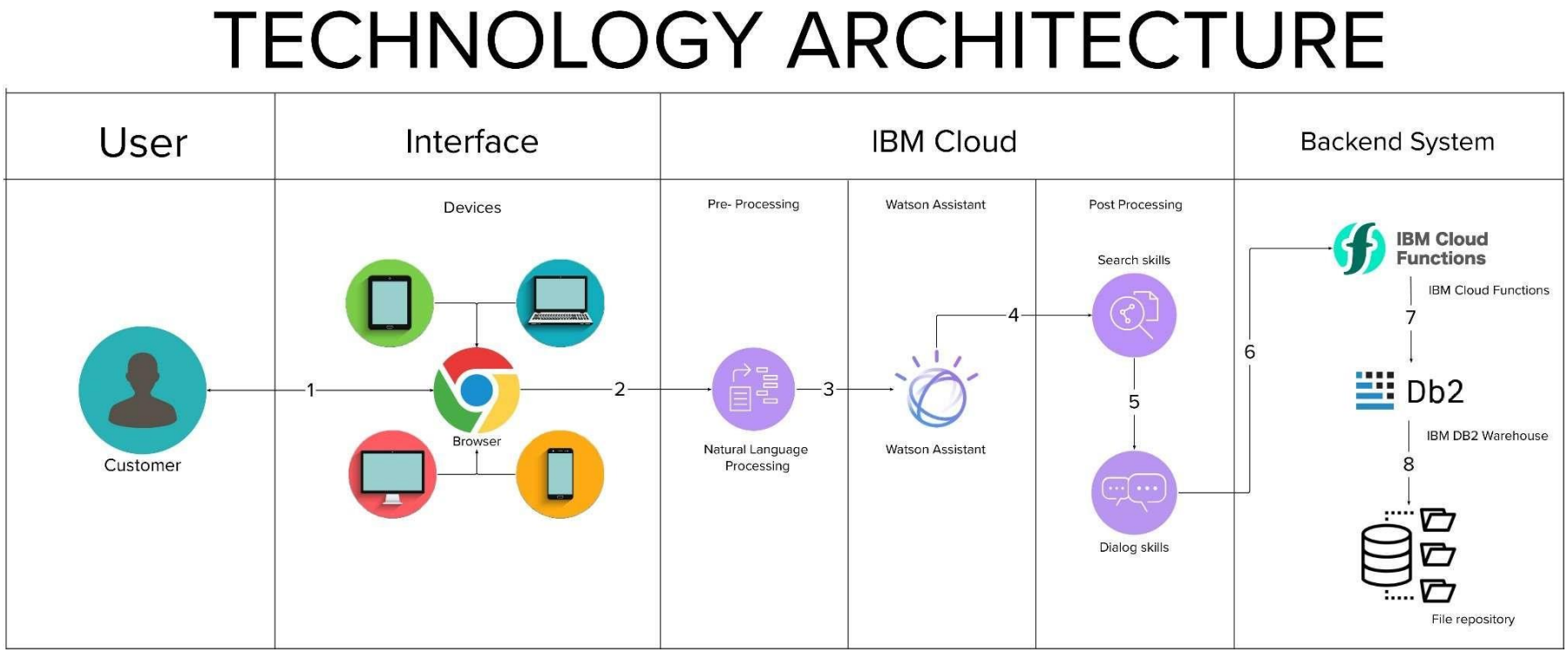

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	A user interacts with the application.e.g. Web UI, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	User message processing	NLP and NLU
3.	Application Logic-2	Matching intent / Entities	IBM Watson Assistant
4.	Application Logic-3	Training and Building Deep Learning Model	IBM Watson Studio
	Application Logic-4	Deployment	Python Flask
5.	Database	Data Type –Dialog, Intent etc. The user's message statistics and trained model data are saved and configured.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	To store datasets	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	To incorporate conversation, language and advanced text analytics into chatbot	IBM Watson Assistant API, etc.
9.	External API-2	Banking API –Data transfer between two systems and data accessibility.	Banking API, etc.
10.	Machine Learning Model	Models of deep learning for intent detection and other tasks	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Python Flask Cloud Server Configuration : Cloud Foundry	Python Flask, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open-source frameworks used is Python Flask	Technology used Python Flask
2.	Security Implementations	End-to-end encryption of data, Isolation of customer data, Vulnerability scanning and intrusion detection, Antivirus and anti-malware protection, Security for user devices, Application of security patches.	SHA-256, Encryptions, IAM Controls, OWASP,IBM Watson Assistant etc.
3.	Scalable Architecture	Chatbot architecture consists of four pillars. They are intents, entities ,data flow, scripts (3 – tier architecture –presentation tier, application tier, data tier and Microservices architecture)	Technology used –IBM Watson Assistant
4.	Availability	The Bot is made available using load balancers, distributed servers etc.	Technology used –IBM Watson Assistant
5.	Performance	IBM Watson –automate processes, The deep learning model is trained using IBM Watson studio for better performance	Technology used –IBM Watson Assistant